

6 weeks during May and the beginning of June, 1957, heavy rains fell almost daily. In mid-July the same sites were revisited. Spring flowers were at the height of their display, but the ground was still wet. Even under logs and stones the soil was washed quite bare of debris. Only a few, mainly immature, snails were active. Eggs were exposed in tangles of debris where their survival was doubtful. A check in 1958 showed a population smaller than that of 1956.

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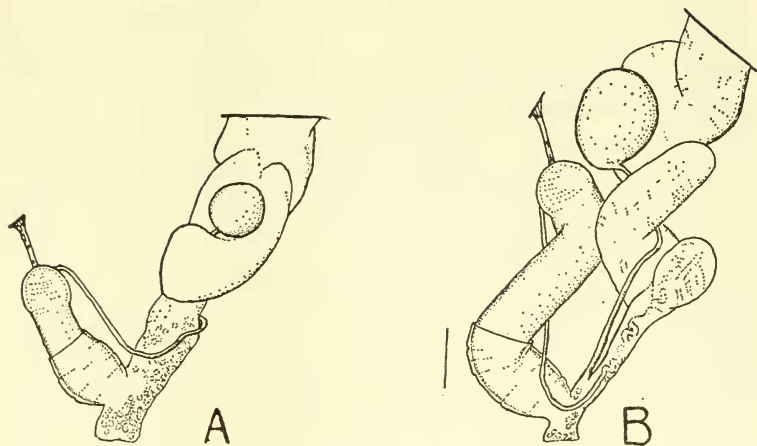
PALLIFERA FOSTERI, WITH *P. MEGAPHALLICA*, NEW

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PALLIFERA (*PANCALYPTUS*) FOSTERI F. C. Baker. Text-fig. A

This species has been reported from several midwestern localities (Baker, 1939; Pilsbry, 1948; Webb, 1952), from the southern Atlantic coastal plain (Hubricht, 1953; Grimm, 1960); and specimens resembling it have been reported from Michigan and Ontario (Pilsbry, 1948). In 1952, Webb published a brief description of the genitalia of immature specimens from 30 miles west of the type locality. Included with this description was a more complete description of the mature anatomy of a color form, *P. fosteri oughtoni* Webb. Essentially, the genitalia of specimens from the Sanford Woodlot of Michigan State University, East Lansing, Ingham Co., Michigan, agree with



Anterior genitalia of *Pallifera*. A, *P. fosteri*, Ingham Co., Michigan. B, *P. megaphallica*, from type lot (ANSP. 251839). Scales=approximately 1 mm.

the description and figures published for *P. fosteri* and *P. f. oughtoni* from Illinois. For comparative purposes, however, the following information concerning Michigan examples is presented.

Animal: Mantle very light tan, spotted and reticulate with dark brownish gray. The reticulations are heaviest in the middle of the back, but no dorsal line is formed. At the sides, the reticulations form two broken lateral lines. The tentacles are slate gray, and the anterior margin of the foot is brownish red. Length (preserved) 10 to 17 mm.

Genitalia: Atrium short and glandular near the vagina, which is largely enveloped in glandular tissue. Spermatheca small, globular, and placed at the end of a thin, non-expanded stalk which is somewhat longer than the penis. The thick and tubular penis is about 2 mm. long and bears a basal sheath of slightly less than 1 mm. in length. The apical region of the penis is thin, subtranslucent and slightly expanded, and the penial retractor is short. The genitalia differ from *P. f. oughtoni* only in having a slightly more extensive vaginal gland and a somewhat larger penial retractor.

The mantle pattern of this lot differs from that of *oughtoni* in being marked with brownish gray, not black, and in having less prominent lateral lines.

PALLIFERA (PANCALYPTUS) MEGAPHALLICA, new species.

Text-fig. B

Animal: Markings similar to those of *P. fosteri* from Michigan except that the mantle reticulations are darker gray, a distinct dorsal line is present, and the lateral lines are blackish. In the type lot, the brownish red sides of the foot are less prominent or are absent altogether. Length (preserved) 13 to 19 mm. (holotype largest; not dissected).

Genitalia: Atrium short, slightly glandular near the vagina. Vagina short and free of glandular tissue. Spermatheca larger than that of *P. fosteri*; placed upon a thin non-expanded stalk which is equal to or slightly less than the penis in length. The thick and tubular penis is about 6 mm. long, is twisted a full turn, and bears a basal sheath approximately 2 mm. in length. Apex of penis as in *fosteri*. Internally, the tip of the penis is circularly striate and the penis bears an elongate, variously wrinkled pilaster which hangs loosely from a sub-apical origin and extends nearly to the region of the sheath. Penial retractor short, only slightly longer than that of *fosteri*. The albumen gland is much reduced, and the hermaphrodite duct is greatly swollen.

Jaw arched and centrally plicate, as in *P. fosteri*.

Distribution. Maryland: Worcester Co.: among wet leaves and cypress needles near small creek, dump along Pocomoke River, west-southwest edge of Snow Hill, type (Acad. Nat. Sci. Philadelphia no. 251838) and paratypes ANSP. 251839-40; other paratypes in the author's collection; Porter's Crossing, Pocomoke Cypress Swamp north of Snow Hill; logs beside U.S. 113 near Mattaponi Creek; 0.5 mile south of Girdletree. Wicomico Co.: Royal Oak; roadside near Quantico forest fire tower on Md. 349; near bridge at Mill Branch, 1 mile south of Mardela Springs; under logs along Md. 354, 2.1 miles south of Willards; under logs, 1 mile south of Bivalve. Caroline Co.: near bridge at Hunting Creek. Queen Annes Co.: roadside near Normans, 3 miles south of Stevensville, Kent Island; woods immediately north of Stevensville, Kent Island. St. Mary's Co.: Oaks, at railroad crossing. Charles Co.: 2 miles southeast of La Plata on Md. 6; valley of Hell's Bottom Run between Dentsville and Oliver's Shop; woods .8 mile east-southeast of Bryan's Road; valley of Old Woman's Run, 1 mile south of Bennesville. Anne

Arundel Co.: Bodkin Plains, near Pasadena; Leon, on the Patuxent River. Prince Georges Co.: valley of Walker Branch, west end of Laurel, Baltimore Co.: Relay; northwest corner of cemetery, Woodlawn; dump in upland oak woods near Patapsco State Park off Hilton Ave., Catonsville.

Pallifera megaphallica is very closely related to *P. fosteri*, and differs from the latter primarily in the enormous size of the penis, which is visible through the body wall. The degree of twisting of the penis, the sizes of the albumen gland and hermaphrodite duct, as well as the amount of glandular tissue on the vagina and atrium vary among the several lots seen. Perhaps this variation may be correlated with the sexual cycle. Juveniles of *megaphallica* have a longer and more slender penis than adult *fosteri*. Intensity of color is also extremely variable; specimens from dry localities are quite well marked, whereas those of wetter regions are generally of less heavy pigmentation. Occasionally a specimen will lose nearly all its markings and retain only a trace of the lateral lines.

In Maryland, *P. megaphallica* is the common coastal-plain species. It extends into the piedmont near the fall-line. Adults appear by December 19 and persist at least until May 10. They have a seasonal life cycle, as does *P. fosteri* in Michigan. Hubricht's (1953) record for *P. fosteri* in Somerset Co., Md., undoubtedly pertains to this species. Probably his additional coastal localities, from Virginia to Georgia, are also based on *megaphallica*.

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